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STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

VOLUME 23 MARCH · 1942 NUMBER 3

Health Contrasts World Wars I and II

THE health of the American people is bound to play an all-important role in the present war. On it will depend the maintenance of high morale not only in the armed forces of the Nation, but in the civilian population as well. The workers on defense projects cannot be expected to accomplish successfully the great job that lies ahead if they are not kept well and physically fit.

Fortunately, the country was never better fortified in point of health than today. Thanks to the succession of outstanding discoveries in medical science and notable developments in public health, we are now much better prepared for the hardships and vicissitudes of modern warfare than we were 25 years ago at our entry into the first World War.

This is clearly shown in the mortality experience among the Industrial policyholders of the Company. Their death rate in the age group 1 to 74, adjusted for changes in the color, sex, and age distribution, has been reduced slightly more than 50 percent in the course of the last quarter of a century. In this reduction in the general mortality the death rate from practically every important cause of death individually took part, as shown in the table on page 3.

The diseases of childhood and infancy—measles, scarlet fever, whooping cough, diphtheria, and diarrhea and enteritis—have been virtually eliminated as causes of death within this period. This means not only that there has been a very substantial saving of life at these early ages, but that many of our young people living today have been spared the disabling sequelae of these diseases. In consequence of this situation, thousands are now available for war service who, under former conditions, would have been rejected.

The death rate from tuberculosis among the Industrial policyholders has been reduced to just about one fifth since 1917. This is a fact of particular importance in connection with the war effort, because tuberculosis finds many of its victims among those in the prime of life—that is, between the ages of 20 and 50—the very people on whom will fall the chief burden of prosecuting the war.

Syphilis is another disease concentrated mainly in youth and middle life, that unfortunately tends to spread in times of war. The mortality from syphilis among the Company's Industrial policyholders is less than half of what it was in 1917, and the outlook for its control in this war is much better than it was 25 years ago.

Calamitous in the last war were our losses from influenza and pneumonia. The first of these fluctuates so widely in prevalence and virulence from year to year that it is impossible to estimate the likelihood of a serious visitation within the next few years. Recent research into the causative agent of influenza, however, encourages the expectation that the Nation may be better prepared today to cope with any epidemic that might arise than it was in 1918. Pneumonia, thanks to the new chemotherapy, has lost much of its former terror. The death rate from this cause among Industrial policyholders has dropped more than 82 percent since 1917.

In view of the rapidly increasing industrialization of the Nation and the fact that many defense workers are for the first time coming in contact with machinery and other hazards of war work, we can hardly hope to escape an increase in fatal accidents in the near future. But during the years since 1917 there have been such marked advances in industrial hygiene and in accident prevention, that surely many lives and countless working days will be saved that would have been lost under the working conditions prevailing at the time of the last war.

A factor that will not be without influence in maintaining morale is the marked improvement recently experienced in the mortality of women in childbirth. It will be a comfort for the young father, whether in defense work or in the armed services, to know that modern care available to his wife during her pregnancy and confinement has greatly diminished the risks to which she is exposed at that critical time. In this he will have better ground for confidence than had his father during the first World War. Improvement in prenatal care, obstetrics, and hospital facilities since 1917 have achieved wonders in reducing the hazards of the puerperal state. Whereas 25 years ago more than 17 out of every 100,000 of the Company's Industrial policyholders died in childbirth, today this rate is reduced to five. While some part of the decline is due to the reduced birth rate, much the greater part unquestionably is attributable to better medical and nursing care.

There is one cause of death for which the rate has greatly increased —in fact, more than doubled—since 1917, namely, motor vehicle accidents. The reason for this is perfectly obvious, since the number of cars on our highways has increased manifold in the interim. In 1917 there were less than 5,000,000 automobile vehicles registered in the United States; today the number exceeds 33,000,000. Possibly the

reduced automobile traffic resulting from curtailment of our supply of rubber and gasoline may at least temporarily mitigate our death rate from this cause. On the other hand, we must perhaps expect a certain number of motor vehicle fatalities among our troops in training.

Such are some of the changes in mortality from certain of the principal causes among persons in the more active ages of life. Less directly related to the war effort are the causes of death characteristic of the declining years, including more particularly chronic degenerative disorders. As a matter of fact, even among these there has been considerable improvement since 1917.

Inasmuch as the Company's policyholders number many millions and are distributed widely in all sections of the country, they constitute a very representative cross-section of the total wage-earning population. Their health experience since the last war, therefore, reflects closely that of the entire country, and the observations here recorded on the basis of their experience may be considered generally applicable to the Nation as a whole.

STANDARDIZED* DEATH RATES PER 100,000 FOR SPECIFIED CAUSES—TOTAL PERSONS, AGES 1 TO 74 YEARS—WEEKLY PREMIUM-PAYING INDUSTRIAL BUSINESS, 1917 AND 1941 COMPARED—METROPOLITAN LIFE INSURANCE COMPANY.

CAUSE OF DEATH	1941†	1917
ALL CAUSES—TOTAL	615.5	1264.5
Typhoid fever	0.4	12.0
Measles	0.8	10.2
Scarlet fever	0.5	5.4
Whooping cough	0.7	5.0
Diphtheria	0.7	21.7
Influenza	5.9	15.0
Pneumonia—all forms	23.0	131.8
Tuberculosis—all forms	40.9	202.2
Syphilis	9.1	19.1‡
Cancer—all forms	84.5	80.7
Diabetes mellitus	19.6	17.1
Chronic cardiovascular-renal diseases	262.8	373.2
Diarrhea and enteritis	2.0	24.6
Appendicitis	7.2	11.6
Puerperal state—total	4.6	17.2
Accidents—total (excluding war deaths)	50.0	84.3
Automobile accidents	20.4	10.0

*For standard used, see *Twenty-Five Years of Health Progress*, by LOUIS I. DUBLIN and ALFRED J. LOTKA, Metropolitan Life Insurance Company, page 526.

†Provisional.

‡Excludes aneurysm of the aorta.

Bicycle Accident Fatalities Increase Again

LAST year around 1,100 persons, nearly one fourth more than in 1940, it is estimated, were killed in bicycle accidents in the United States. Undoubtedly, the new importance of bicycles as a means of civilian transportation contributed to the increase. The 1940 toll and that for each year since 1936 was estimated to be close to 900 lives. In 1932, just before the beginning of a marked revival in the popularity of recreational bicycling throughout the country, there were only some 450 deaths.

At the present time, all signs point to the bicycle as an even more common method of transportation. Rationing of automobile tires and curtailing of gasoline will soon be more acutely felt. The War Production Board has ordered a trebling of the output of adult bicycles to prepare for the possibility that workers may have to depend on bicycles rather than automobiles to reach their jobs. Increasing numbers of suburbanites are cycling to and from railroad stations. Bicycle racks installed at convenient points are stimulating the use of bicycles among shoppers. Some parents have already stopped the practice of driving their children to and from school, and the youngsters are making the round trip on bicycles. It is evidently desirable that bicyclists—old and new, youngsters and adults—be made clearly aware of the hazards involved in bicycling on our streets and highways today.

Of the 1,100 fatalities to cyclists last year, a little more than 900 resulted from injuries sustained in collisions with automobiles. Even though there will be fewer automobiles on the highways, such collisions will probably remain the bicyclist's most serious hazard. Falling off the bicycle; running into trees, curbs, or other fixed objects; and running into street cars, were the types of accidents responsible for most of the other fatalities. A number of pedestrians also were struck and fatally injured by bicycles.

The mortality experience among the Industrial policyholders of the Metropolitan Life Insurance Company, and the motor vehicle bureau records for some large States, indicate that adults constituted a larger proportion of the bicycle victims in 1941 than in the previous year. Among adult male insured persons of ages 20–64 the death rate in bicycle collisions with automobiles, 6.3 per 1,000,000 persons in 1941, was the highest rate in the period of 17 years for which data are available.

Each year, however, boys in the age group 10–19 are the most frequent victims. In the years 1936–1941 the average annual death rate from bicycle-automobile collisions was 32.5 among insured boys of ages 10–19. Bicycle fatalities were relatively infrequent among insured girls and women, and no death rates have been calculated for them.

Taking chances and careless actions on the part of the bicyclist are

the underlying causes in practically all of the accidents: weaving in and out in heavy traffic; darting suddenly from driveways or dark streets into the paths of oncoming cars; failure to obey the rules regarding turns, and making sharp turns; disregard of signal lights and stop signs at intersections; failure to stay on the right side of the road; zigzagging along in groups, several abreast; and speeding on wet pavements. Other dangerous practices are hitching onto the sides of moving trucks and other vehicles, stunting and racing in traffic, and carrying other riders on the handlebars, thus making it difficult to control the bicycle. Novices who have not mastered control of the bicycle should keep off congested thoroughfares and should avoid steep downhill grades.

Too often the bicyclist gives little attention to the mechanical condition of the bicycle and its accessories. Bell or horn and headlights or reflectors are either missing or out of order. Loose handlebars, frame weaknesses, broken pedals, or faulty brakes make many a bicycle on the road unfit for safe operation. Bicycles in bad condition may become an even greater factor in accidents in the near future, since with the revival of cycling some may be tempted to resuscitate from its resting place in the cellar an old wheel discarded years ago.

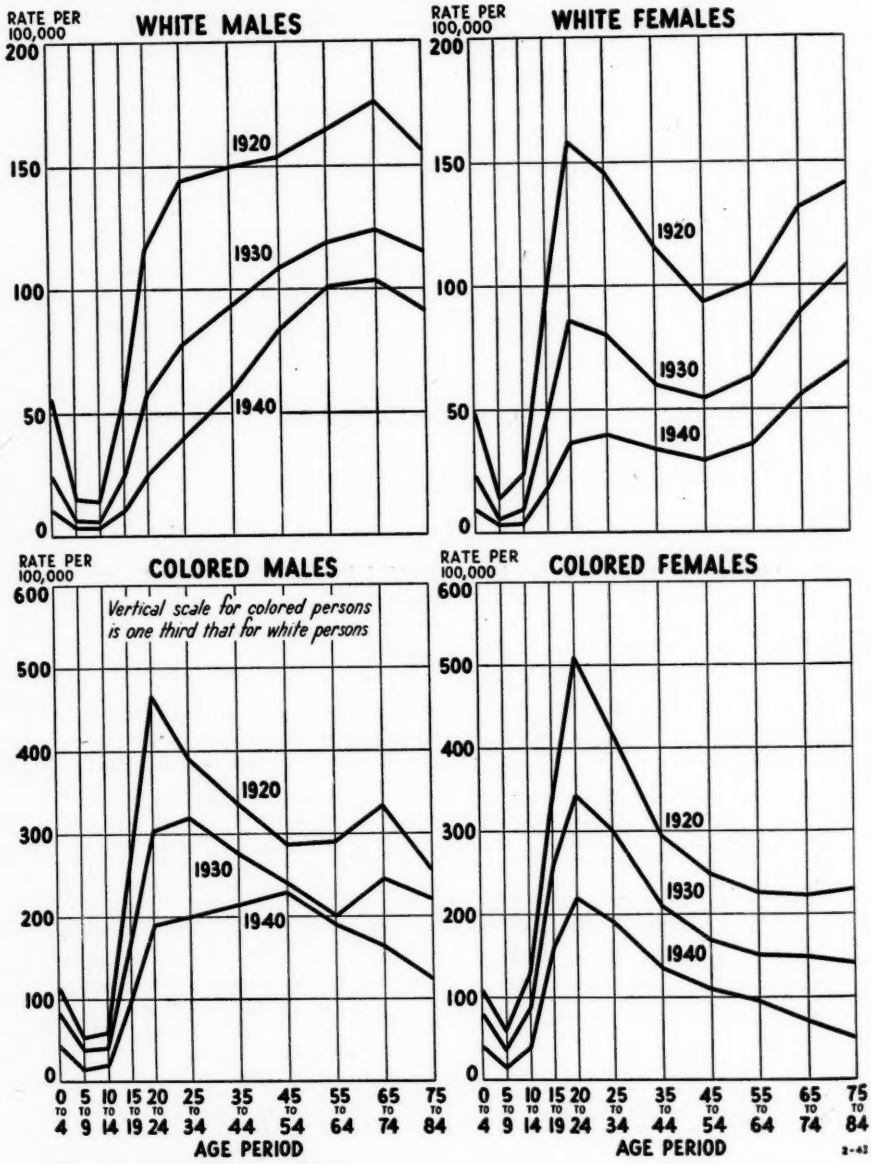
The Changing Aspect of Tuberculosis Mortality, 1920 to 1940

WITHIN the short space of two decades, mortality from tuberculosis among white persons in the United States has been reduced by two thirds; for colored persons the new level is one half the old. In each case, females have not only a lower death rate, but at the same time a more rapid decline in mortality than males. For example, white females in 1940 had a death rate standardized for age of only 25.3 per 100,000, as against 93.4 in 1920, a reduction of 73 percent when due adjustment is made for the change in age distribution in the interim; while for white males the death rate in 1940 was 37.0 per 100,000, as against 99.4 in 1920, a reduction of 63 percent. The figures for 1941 and for the opening months of 1942 will be even better, if we may be guided by the mortality experience among the Industrial policyholders of the Metropolitan Life Insurance Company. Among colored persons in the general population the death rate from tuberculosis at the present time is about four times that of white persons.

A very telling picture is obtained of the change in the tuberculosis situation since 1920 when the death rates are plotted according to age, color, and sex, as shown in the chart on page 6, separately for the years 1920, 1930, and 1940. In every case the curves for successive decades lie in chronological order one below the other. In other words, every color, sex, and age grouping shared in the

TUBERCULOSIS

DEATH RATES BY AGE, COLOR AND SEX; UNITED STATES, 1920*, 1930† AND 1940⊙



*Death Registration States of 1920
†United States, except for Texas
⊙Total United States

METROPOLITAN LIFE INSURANCE COMPANY

improvement in tuberculosis mortality during the last two decades.

The chart is most striking. No other cause of death shows anything like the diversity of characteristics according to color, sex, age, and calendar period. The outstanding feature of the curve for white males in 1920 is the almost vertical ascent in the mortality from its minimum in the age group 5 to 14 up to ages 25 to 34. Those were still the days when parents of adolescent children only too often had real cause for anxiety on account of the prevalence of the disease among children in their late teens and young people in their early 20's. Most fortunately, it is at this period of life and among young children that the greatest relative improvement has taken place. The death rate among white males at ages under 25 in 1940 is only about one fifth of that in 1920. The greatest absolute difference is in the age group 25 to 34, when most men have already established a small family, with a death rate of 144 per 100,000 in 1920, as against only 40 in 1940. That tuberculosis always has been and still is today a major threat in later life is perhaps not altogether generally realized. Actually, the maximum death rate among white males, both in 1920 and in 1940, is in the age group 65 to 74, but the peak mortality in 1940 is only 58 percent of that in 1920.

The curves representing the death rate among white females differ so radically from those among white males, that anyone not familiar with the facts would hardly suppose that they related to the same disease. True, the steep ascent of the mortality curve in 1920 from girlhood to young womanhood was just as marked as the corresponding part of the curve for males, and fortunately the great improvement within the two decades at this point of the curves was also equally marked. But beyond age 24 the curve for white females bears no resemblance to that for white males. Instead of continuing high to practically the end of life, all the curves shown dip down to a low point at the ages 45 to 54. The dip is steepest on the curve for 1920, with its excessively high peak for young women, and is necessarily much less marked in 1940, where, indeed, the rates from ages 20 to 64 run almost on a horizontal level. From age 65 up, the curves for white females rise to the end of life, remaining however much below the level of the male curves; this is especially true for the calendar year 1940.

Another radical change is seen when attention is transferred from the charts for white persons to the charts for colored persons. In the first place all the rates are very much higher, so that a vertical scale three times more condensed has been used in the drawing to represent the death rates. If the same scale had been used as for whites, the curves for the colored persons would project beyond the top of the upper panels in the chart. Although the situation among the colored is thus quite unfavorable as compared with that for white persons, actually

DEATH RATES* PER 100,000 FROM TUBERCULOSIS (ALL FORMS)—UNITED STATES, 1940, 1930, 1920†, BY COLOR, SEX, AND AGE

AGE	YEAR			PERCENT DECLINE FROM 1920 TO 1940
	1940	1930	1920*	
	WHITE MALES			
ALL AGES				
Crude	44.6	63.3	104.0	57.1
Standardized	37.0	58.6	99.4	62.8
Under 15	5.6	13.3	29.7	81.1
15–24	17.3	40.7	85.5	79.8
25–64	62.8	93.9	150.0	58.1
65 and over	98.8	120.3	169.0	41.5
	WHITE FEMALES			
ALL AGES				
Crude	28.3	51.9	94.6	70.1
Standardized	25.3	50.3	93.4	72.9
Under 15	5.8	13.0	29.6	80.4
15–24	27.6	65.8	127.9	78.4
25–64	35.2	66.4	120.9	70.9
65 and over	59.4	93.6	134.4	55.8
	COLORED MALES			
ALL AGES				
Crude	138.6	194.1	255.1	45.7
Standardized	134.8	194.7	258.0	47.8
Under 15	28.0	56.6	76.0	63.2
15–24	144.2	236.8	363.4	60.3
25–64	208.6	274.6	340.0	38.6
65 and over	152.2	236.0	313.8	51.5
	COLORED FEMALES			
ALL AGES				
Crude	117.1	189.6	268.7	56.4
Standardized	113.3	185.8	265.6	57.3
Under 15	31.2	67.2	99.6	68.7
15–24	190.2	300.3	427.4	55.5
25–64	145.1	227.0	320.9	54.8
65 and over	65.4	145.8	221.1	70.4

*All death rates, except for "All Ages, Crude," have been standardized on the basis of the Standard Million of England and Wales, 1901.

†1940 Total United States; 1930 United States, except for Texas; 1920 Death Registration States of 1920.

marked improvements do appear in the curves. In the case of colored males, this improvement has resulted in the complete elimination, in the curve for 1940, of the high peak which in the earlier curves appeared in the age groups 20 to 24 and 25 to 34. The result is that the curve for colored males now in its outline is beginning to resemble that for white males 20 years ago.

The curves for colored females, on the other hand, for each of the three decades, show a peak at ages 20 to 24. They differ from the curves for white females, aside from the general level of the mortality, also in that each of the curves slopes downward practically to the end of life, whereas among white females there was a strong upturn in mortality at the higher ages in all three decades.

Some further details regarding the rates graphically exhibited in the chart will be found in the table on page 8, which among other things indicates for each age group and for each color and sex the proportional reduction in mortality in the period from 1920 to 1940.

In 1920 tuberculosis among white persons curtailed the average length of life by nearly two years; or to put it in another way, if at that time tuberculosis had been completely eliminated, two years would have been added to the average length of life. By 1940 the progress achieved was such that now only three quarters of a year would be added to the average length of life of white males and six tenths of a year to the average length of life of white females by the complete elimination of tuberculosis. More striking is the comparison in the chances of eventually dying from tuberculosis; according to conditions of 1920 the chances, for a newly born white child, of eventually dying of the disease were six in 100; at present these chances are less than three in 100.

The achievements in the campaign against tuberculosis during the two decades of peace from 1920 to 1940 have been so great that the term "white plague," formerly applied to the disease, is nowadays hardly ever heard. The outlook for the immediate future is still optimistic, although the nearer we come to a perfect score, the harder it will be to register marked improvement. There is, of course, some danger that the improvement in the tuberculosis rate may slow down because of war conditions, such as crowded housing, poor sanitation, and overwork. We certainly cannot afford to relax our efforts for the control of tuberculosis even during this trying period. The disease can be virtually eliminated. This much American experience has clearly demonstrated.

The Stature of American Women

Movie stars and the models posing for the pictures in commercial advertisements have come to represent, in the popular mind, what the American woman should look like, but doesn't. Nor is she a short and dumpy person as has been inferred from a recently published report of

the Bureau of Home Economics of the U. S. Department of Agriculture.* Actually, it is almost futile to speak of the *average* American woman, because in this great country of ours, with its varied race stocks, there are many types of build, and there are distinct changes in the female figure according to age.

The recent Government study, made in 1939–1940, gives the average height of American women as 5 feet, 3⅙ inches. This relatively low figure creates a false impression in that the measurements were made in stocking feet, whereas the commonly quoted average is based on measurements in shoes. If allowance is made for this, the comparable average for this new study would be 5 feet, 5 inches, since 2 inches is a fair allowance for the height of heels of women's shoes. Apart from that, this new study shows a marked variation in height with age. Thus, girls of 18 and 19 averaged 63¾ inches in height (without shoes) and those between 20 and 24 not much less. Moreover, in several important respects, the sample of 10,000 women used in this study was biased, and the net result was to yield a set of averages which, as regards height at least, are too low. For, this sample contained a disproportionate number of such groups of women as those from cities, the Eastern seaboard, and low-income families, and, as the detailed analysis showed, the average height of such women is distinctly low, as compared with the general population.

What is most important, however, is the fact that despite its deficiencies the study confirms others, including one made by the Metropolitan Life Insurance Company a few years ago, in showing that American girls today are as a class distinctly taller than their mothers. For, the averages at the ages between 18 and 25 were about 1 full inch greater than the averages between 45 and 55. Furthermore, the average height of all the women in the new study was greater, age for age, than the average heights of women accepted for insurance in the Ordinary Department of the Metropolitan during the years 1922 to 1934. These increases in average heights are the more remarkable since women of the shorter European stocks have come to form an increasing proportion of our female population.

Altogether, the average height and build of American women is showing satisfactory improvement. This reflects the betterment in the health of American women resulting primarily from better nutrition in childhood, and from the rise in the standard of living. As more and more of our population share these benefits it is likely that there will be a further increase in the average height of American women, until this general average comes close to that observed among the most favored groups.

* "Women's Measurements for Garment and Pattern Construction," by RUTH O'BRIEN and W. C. SHELTON, Miscellaneous Publication No. 454, U. S. Department of Agriculture, Washington, 1941. The comments in the above article reflect in no way on the great value and usefulness of this study, which has furnished excellent and original data for the use of American garment manufacturers.

Comparative Data on the Causes of Death Among Industrial Policyholders

The following table shows the mortality among Industrial policyholders for February 1942 and February 1941, together with the death rates for the first two months of 1942, 1941, and 1940.

DEATH RATES* PER 100,000 POLICYHOLDERS FROM SELECTED CAUSES. WEEKLY PREMIUM-PAYING INDUSTRIAL BUSINESS — METROPOLITAN LIFE INSURANCE COMPANY

CAUSES OF DEATH	ANNUAL RATE PER 100,000 POLICYHOLDERS*				
	February 1942	February 1941	Year to Date: End of February		
			1942	1941	1940
ALL CAUSES—TOTAL	811.7	891.6	802.1	865.7	846.3
Typhoid fever	0.1	0.6	0.2	0.5	0.4
Measles	.2	.6	.4	.4	.3
Scarlet fever	.8	.7	.6	.5	.8
Whooping cough	.9	1.7	.9	1.4	1.5
Diphtheria	.8	.7	.7	.7	1.5
Influenza	7.6	28.0	6.9	23.2	16.4
Pneumonia (all forms)	43.9	62.5	40.3	56.3	58.1
Tuberculosis (all forms)	42.2	46.3	41.9	44.0	44.9
Tuberculosis of respiratory system	38.0	42.5	38.0	40.2	41.3
Syphilis	8.1	12.5	10.0	11.0	12.4
Cancer (all forms)	105.1	102.0	102.2	103.8	102.1
Diabetes mellitus	31.2	36.2	30.2	33.8	31.1
Cerebral hemorrhage	64.8	68.2	64.0	66.9	66.5
Diseases of the coronary arteries and angina pectoris	60.4	63.2	63.4	60.6	55.9
Other chronic heart diseases†	173.5	193.2	173.3	185.3	177.4
Diarrhea and enteritis	4.2	2.8	3.9	3.0	3.6
Appendicitis	5.2	8.5	5.4	7.6	8.6
Chronic nephritis	56.0	60.7	54.6	58.4	60.7
Puerperal state—total	4.3	4.9	4.3	4.1	4.5
Suicides	6.3	7.8	6.7	8.1	7.5
Homicides	3.9	3.0	3.7	3.3	3.0
Accidents—total	54.0	44.7	54.0	48.2	48.1
Home accidents	12.8	11.7	12.2	12.6	15.4
Motor vehicle accidents	18.1	16.5	21.3	20.2	17.2
All other causes of death	138.1	142.8	134.4	144.8	140.8

*The rates for 1941 and 1942 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†International List (1940) titles 92, 93 (c), (d), (e), and 95.

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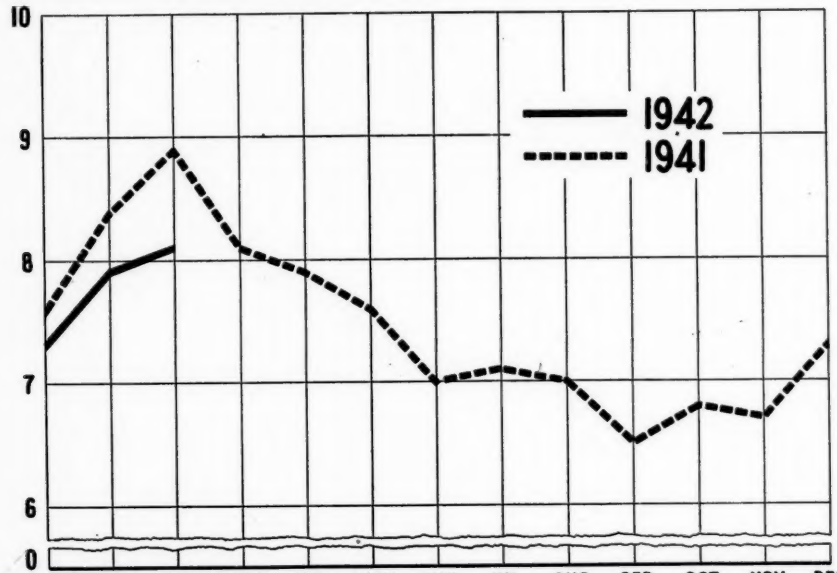
MORTALITY FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT, WEEKLY PREMIUM-PAYING BUSINESS

DEATH RATES PER 1,000 · ANNUAL BASIS (Provisional)



(DEC.)	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1941	8.4	8.9	8.1	7.9	7.6	7.0	7.1	7.0	6.5	6.8	6.7	7.3
1942	7.9	8.1										

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